



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| | | | | |
|---|-------------|----------------------|--------------------------------|------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/670,531 | 09/26/2003 | Wayne Castleberry | X-9425 | 6510 |
| 7590 01/10/2007 John S. Hale GIPPLE & HALE 6665-A Old Dominion Drive McLean, VA 22101 | | | EXAMINER GELLNER, JEFFREY L | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3643 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 01/10/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/670,531

Applicant(s)

CASTLEBERRY, WAYNE

Examiner

Jeffrey L. Gellner

Art Unit

3643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23, 25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23, 25, 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 3643

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hann et al. (US 6,479,433 B1) in view of Garrett (US 5,617,672) in further view of Univ. of Fla.

As to Claims 1-5, Hann discloses a horticultural growing medium (abstract) comprising a flexible diphenylmethane diisocyanate foam material (col. 4 lines 20-29), the horticultural medium being capable of supporting plant growth (abstract). Not disclosed is the foam without filler and having a CEC of from 1.0 to 1.5. Garrett, however, discloses the use of a foam without filler to grow plants (col. 7 lines 58-65); Univ. of Fla. discloses a CEC of approximately 1.0 (at middle of page 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the medium of Hann et al. by having the medium without filler as disclosed by Garrett so that the medium could be used for hydroponics (see Garrett col. 7 lines 58-65) so as to increase the use of the foam and to have the CEC of the foam to be from 1 to 1.5 as disclosed by Univ. of Fla. depending upon the desired type of soil or medium to be emulated.

Art Unit: 3643

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hann et al. (US 6,479,433 B1) in view of Garrett (US 5,617,672) and Univ. of Fla. in further view of Buckman and Brady.

As to claim 6, the limitations of claim 1 are disclosed as described above. Not disclosed is the pH of the medium being from 6.8 to 7.8. Buckman and Brady at pages 36-37 disclose that soils that accommodate the growth of plants can have a pH from 5 to 9. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the medium of Hann et al. as modified by Garrett and Univ. of Fla. by having the pH from 6.8 to 7.8 as disclosed by Buckman and Brady depending upon the type of soil to be emulated.

As to claim 7, the limitations of claim 1 are disclosed as described above. Not disclosed is the foam highly porous with a 60 to 40 air to water ratio. Buckman and Brady disclose at pages 9-10 that soil can have variation in the ratio of air to water. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the medium of Hann et al. as modified by Garrett and Univ. of Fla. by having the ratio of air to water to be 60 to 40 as disclosed by Buckman and Brady depending upon the use of the medium (for example, the type of plants grown) and the type of soil to be emulated.

Claims 8-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hann et al. (US 6,479,433 B1) in view of Garrett (US 5,617,672) and Univ. of Fla. in further view of Cook (Ask a Scientist).

As to claims 8-11 and 13, the limitations of claim 1 are disclosed as described above. Not disclosed is the pore size being from 0.2 to 800 micron at various percentages. Cook,

Art Unit: 3643

however, discloses that pore size in soil can range from 1500 microns to 1.5 microns. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the medium of Hann et al. as modified by Garrett by and Univ. of Fla. having the size of pores from 0.2 to 800 micron at various percentages as disclosed by Cook depending upon the use of the medium (for example, the type of plants grown) and the type of soil to be emulated.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hann et al. (US 6,479,433 B1) in view of Garrett (US 5,617,672) and Univ. of Fla. in further view of Decker (US 5,899,020).

As to claim 12, the limitations of claim 1 are disclosed as described above. Not disclosed is the material being sterile. Decker, however, discloses a medium being sterile (col. 3 lines 18-22). It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the medium of Hann et al. as modified by Garrett and Univ. of Fla. by having the medium being sterile as disclosed by Decker so that any plants will be less subject to contamination (see Decker at col. 3 lines 18-23).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hann et al. (US 6,479,433 B1) in view of Garrett (US 5,617,672) and Univ. of Fla. in further view of Caron et al. (US 6,178,691 B1).

As to claims 14, 15, the limitations of claim 1 are disclosed as described above. Not disclosed is the material having a porosity from 85 to 95% or 90 to 92%. Caron et al., however, discloses a medium having a porosity of 85% or greater (col. 7 lines 52-57). It would have been

Art Unit: 3643

obvious to one of ordinary skill in the art at the time of the invention to further modify the medium of Hann et al. as modified by Garrett and Univ. of Fla. by having a medium with a porosity from 85 to 95% as disclosed by Caron et al. so as to be maintained in a water saturated state (see Caron et al. at col. 6 lines 63-67) so as to ensure water to the plant or 90 to 92% so as to be maintained in a water saturated state so as to ensure water to the plant.

Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hann et al. (US 6,479,433 B1) in view of Garrett (US 5,617,672) in further view of Cook (Ask a Scientist); Univ. of Fla; and, Caron et al. (US 6,178,691 B1).

As to Claims 16-19, Hann discloses a horticultural growing medium (abstract) comprising a flexible diphenylmethane diisocyanate foam material (col. 4 lines 20-29 and table II of cols. 9 and 10), the horticultural medium being capable of supporting plant growth (abstract). Not disclosed is the foam without filler; at least 50% pores with pores sized 10 to 200 microns; having a CEC of from 1.0 to 1.5.; and, having a porosity ranging from 85% to 95%. Garrett, however, discloses the use of a foam without filler to grow plants (col. 7 lines 58-65); Cook discloses that pore size in soil can range from 1500 microns to 1.5 microns at various percentages depending upon soil texture; Univ. of Fla. discloses a CEC of approximately 1.0; and, Caron et al. discloses a medium having a porosity of 85% or greater (col. 7 lines 52-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the medium of Hann et al. by having the medium without filler as disclosed by Garrett so that the medium could be used for hydroponic (see Garrett col. 7 lines 58-65) so as to increase the use of the foam and to have the CEC of the foam to be from 1 to 1.5 as disclosed by Univ. of Fla.

Art Unit: 3643

depending upon the desired soil type to be emulated, having the size of pores from 0.2 to 800 micron at various percentages as disclosed by Cook depending upon the use of the medium (for example, the type of plants grown) and the type of soil to be emulated, and having a medium with a porosity from 85 to 95% as disclosed by Caron et al. so as to be maintained in a water saturated state (see Caron et al. at col. 6 lines 63-67) so as to ensure water to the plant.

Claims 20-23, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hann et al. (US 6,479,433 B1) in view of Garrett (US 5,617,672) in further view of Cook (Ask a Scientist); Univ. of Fla; and, Caron et al. (US 6,178,691 B1).

As to Claims 20, 23, 25, and 26, Hann discloses a horticultural growing medium (abstract) comprising a flexible diphenylmethane diisocyanate foam material (col. 4 lines 20-29 and Table II of cols. 9 and 10), the horticultural medium being capable of supporting plant growth (abstract). Not disclosed is the foam without filler; at least 50% pores with pores sized 10 to 200 microns; having a CEC of from 1.0 to 1.5.; and, having a porosity ranging from 92% to 95%. Garrett, however, discloses the use of a foam without filler to grow plants (col. 7 lines 58-65); Cook discloses that pore size in soil can range from 1500 microns to 1.5 microns at various percentages depending upon soil texture; Univ. of Fla. discloses a CEC of approximately 1.0; and, Caron et al. discloses a medium having a porosity of 85% or greater (col. 7 lines 52-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the medium of Hann et al. by having the medium without filler as disclosed by Garrett so that the medium could be used for hydroponic (see Garrett col. 7 lines 58-65) so as to increase the use of the foam and to have the CEC of the foam to be from 1 to 1.5 as disclosed by Univ. of Fla.

Art Unit: 3643

depending upon the desired soil type to be emulated, having the size of pores from 0.2 to 800 micron at various percentages as disclosed by Cook depending upon the use of the medium (for example, the type of plants grown) and the type of soil to be emulated, and having a medium with a porosity from 92% to 95% by modifying Caron et al. so as to be maintained in a water saturated state (see Caron et al. at col. 6 lines 63-67) so as to ensure water to the plant.

As to claim 21, the limitations of claim 20 are disclosed as described above. Not disclosed is the material being a sheet with a seed attached. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the medium of Hann et al. as modified by Garrett, Cook, Univ. of Fla, and, Caron et al. by making into a sheet with a seed attached so as to use in outdoor planting environments.

As to claim 22, Hann et al. as modified by Garrett, Cook, Univ. of Fla, and, Caron et al. further disclose a block with an aperture (Fig. 4 of Hann et al.).

Response to Arguments

Applicant's arguments filed 18 October 2006 have been fully considered but they are not persuasive. The crux of Applicant's arguments are: (1) Hann et al. is a quasi-prepolymer/filler mix which the instant invention is not and in Hann et al. there is no teaching of pH, CEC, porosity, or pore size (Remarks page 7, 3rd complete para.); (2) Garrett is directed to a soil additive with ureaformaldehyde foam which the instant invention is not (Remarks bottom of page 7 continuing to middle of page 8); (3) Univ. of Fla. does not teach use of foam and the CEC with 1.5 is sand and other low surface area materials (Remarks page 9, middle to bottom of page); (4) neither Buckman and Brady, Cook, Decker, nor Caron disclose use of a foam (page

Art Unit: 3643

10); (5) both Mann et al. and Garrett use a filler because un-filler polyurethane foam was not believed to be suitable as a growth medium with the requisite CEC, pH, porosity, and pore size (Remarks bottom of page 11); and, (6) the Examiner is using hindsight (Remarks bottom of page 12).

As to argument (1), Hann et al. discloses a diphenylmethane diisocyanate foam used as a growth medium for plants (col. 4 lines 20-29). The foam meets the limitation of Applicant's claim language. Hann et al. uses a filler but Garrett discloses the use of a foam without filler (soil) to grow plants at col. 7 lines 58-65. If the foam of Hann et al. were used in a hydroponic-type system as suggested by Garrett at col. 7 lines 58-65 then a filler would not be needed because the nutrients would be supplied by the solution. Finally, the material of Hann et al. as modified by Garrett would inherently have a pH, CEC, porosity, and pore size because all plant growing materials have these attributes. It is well known by agronomists and horticulturalists to alter these attributes in growth media to meet the needs of the plant species or the needs of the grower or both.

As to argument (2), Garrett is used to disclose that foams can be used without fillers and used to teach the type of foam used. Hann et al. discloses Applicant's foam.

As to argument (3), Univ. of Fla. is used to disclose the use of growth materials with CEC's claimed by Applicant. Hann et al. discloses Applicant's foam. Examiner considers it obvious to one of ordinary skill in the agricultural or horticultural arts, *i.e.*, agronomists and horticulturalists, to alter CEC in the growth medium to meet the needs of the plant species or the needs of the grower or both.

Art Unit: 3643

As to argument (4), Buckman and Brady, Cook, Decker, and Caron are used to disclose certain attributes of growth media as given in the rejections above. Hann et al. discloses Applicant's foam. Examiner considers it obvious to one of ordinary skill in the agricultural or horticultural arts, *i.e.*, agronomists and horticulturalists, to alter these attributes in the growth medium to meet the needs of the plant species or the needs of the grower or both.

As to argument (5), Garrett does disclose use of a foam without filler. As explicitly stated or implied by the references used in the rejections above, plants can grow in materials displaying a wide range of values for CEC, pH, porosity, and pore size. Examiner considers it obvious to one of ordinary skill in the agricultural or horticultural arts, *i.e.*, agronomists and horticulturalists, to alter these attributes in the growth medium to meet the needs of the plant species or the needs of the grower or both.

As to argument (6), Hann et al. as modified by Garret discloses Applicant's foam. The material of Hann et al. as modified by Garrett would inherently have a pH, CEC, porosity, and pore size because all plant growing materials have these attributes. Therefore, the other references disclose that the pH, CEC, porosity, and pore size that are claimed by Applicant are known in growth media. It would be obvious to alter the foam to have the claimed attributes depending upon the plant being grown, the needs of the grower, or both.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 3643

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey L. Gellner whose telephone number is 571.272.6887. The examiner can normally be reached on Monday-Friday, 8:30-4:00, alternate.

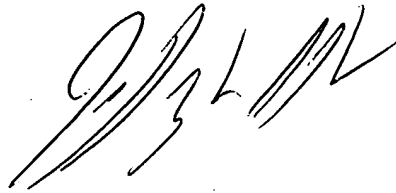
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on 571.272.6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/670,531

Page 11

Art Unit: 3643

A handwritten signature in black ink, appearing to read 'J. L. Gellner', written in a cursive style.

Jeffrey L. Gellner
Primary Examiner
Art Unit 3643